

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-221823

(43)Date of publication of application : 31.08.1993

---

(51)Int.Cl.

A61K 7/00  
A61K 7/06  
A61K 7/48

---

(21)Application number : 04-060893

(71)Applicant : TEI CHU

(22)Date of filing : 31.01.1992

(72)Inventor : TEI CHU

---

### (54) AQUEOUS SKIN, SCALP AND HAIR COSMETIC

#### (57)Abstract:

PURPOSE: To prepare cosmetics capable of providing monosaccharides as an energy source of a cell, promoting secretion of neurotransmitter, regulating and controlling blood flow of dermis, promoting generation and propagation of a healthy skin and useful for a treatment of dry skin, atopic dermatitis, dandruff, etc.

CONSTITUTION: This aqueous skin, scalp and hair cosmetics is obtained by dissolving each component comprising 3-12wt.% fructose, 4-16wt.% glucose, 2-8wt.% xylitol, 0.1-0.9wt.% sodium chloride, 0.01-0.045wt.% potassium chloride, 0.01-0.03wt.% calcium chloride and 0.15-0.45wt.% sodium lactate in an aqueous component at a temperature of 30-49°C.

---

### LEGAL STATUS

[Date of request for examination] 16.04.1992

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 2013542

[Date of registration] 02.02.1996

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against

examiner's decision of rejection]

[Date of extinction of right]

\* NOTICES \*

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

CLAIMS

---

[Claim(s)]

[Claim(s)] the water sex skin skin which dissolved each component which consists of 3 - 12% of fruit sugars, 4 - 16% (weight % is expressed below) of glucose, 2 - 8% (xilitol) of xylitol, 0.1 - 0.9% of sodium chlorides, 0.01 - 0.045% of potassium chloride, 0.01 - 0.03% of calcium chlorides, and 0.15 - 0.45% of sodium lactate in the aqueous-phase component at the temperature of 30-49 degrees C, and the scalp - hair cosmetics.

---

[Translation done.]

**\* NOTICES \***

**JPO and NCIPi are not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**DETAILED DESCRIPTION**

---

**[Detailed Description of the Invention]****[0001]**

**[Industrial Application]** In the skin lesion section this invention -- the water sex skin skin and the scalp, offering the ideal media (environment) which do not grow into a foreign matter (allergen) to a skin cell with respect to - hair cosmetics While supplying direct energy to morbid or an aging skin cell by percutaneous absorption Secretion of the neurotransmitter (NP;neuropeptide) in epidermis or dermis intracellular is urged. the water sex skin skin which attains normal and activation of morbid or an aging skin cell, and promoted generation and growth of a healthy skin cell by adjusting and controlling a skin blood flow indirectly, and the scalp -- it is related with - hair cosmetics.

**[0002]**

**[Description of the Prior Art]** Extracellular fluid and concentration of a sodium chloride are equal, and it has played the role important for homeostasis (homeostasis) maintenance of the extracellular fluid called internal environment (internal enviroment) of the body, and big, and it is blended in cosmetics in order to soften sterilization and the skin until now. [ in / as a physiological saline / in 0.9% solution / the body ]

**[0003]** Although the water solution containing mineral salt, a mineral, a saccharide, etc. is mainly supplied to the inside of the body by the intravenous injection, these are blended also with much cosmetics and drugs as one component of external preparations, and the effectiveness as external preparations is protection of the skin, moisturization, humidity, a germicidal action, etc.

**[0004]** in order for cosmetics to clean up "body by the Pharmaceutical Affairs Law, and to change the increase of charm, and looks or to maintain the skin or hair at \*\*\*\* or \*\* -- the body -- spreading, spraying, and others -- to use it by the approach similar to this is made into the purpose, and what has the \*\*\*\* operation over the body is said -- " (the third term of Article 2 of the Pharmaceutical Affairs Law) -- \*\* -- it defines. However, it is hard to expect the effectiveness as external preparations which used mineral salt and a saccharide as the individual simple substance, and a healthy skin cell is destroyed rather and it is making inflammation symptoms, such as a feeling of itching, rubor, and an edema, appear with the antiseptics blended as one component of the same cosmetics, a surfactant, a germicide, etc.

**[0005]** Moreover, although polysaccharide, such as a dextran, is blended with the solution used as face toilet in order to smooth the skin, as for these polysaccharide, that it is the polymer of monosaccharide, and is easy to become a foreign matter (allergen) to the skin on the property in which molecular weight becomes 10,000 or more, and the feeling of a prop after drying as a brick is also stimulated etc. has many which have lost the essence as cosmetics.

**[0006]** There are these [ no ] only by causing a series of inflammation symptoms and allergy symptoms, and a failure is brought about in a skin front face or epidermis by repetitive use. Cause the imbalance and electrolyte imbalance of an acid and a base, and matter transportation in a cell membrane is not smoothly performed as the result. **[0007]** leading to a vicious circle, such as reducing metabolic turnovers, such as intracellular oxygen, a saccharide and a lipid, and protein, and reducing production of ATP (adenosine tri-phopshate) which is the unit of the energy in a cell as the result And they appear in primary as the symptom of pigmentation (silverfish), a feeling of itching (pruritus), the rubor (ruddy face), and depilation, or symptoms, and it is not rare that many symptoms carry out a repetitive appearance secondarily by use of the ultraviolet rays which were not not at all,

cosmetics, and a chemical before, either.

[0008]

[Problem(s) to be Solved by the Invention] The ideal environment which this invention is made paying attention to the above troubles, and does not serve as a foreign matter (allergen) in \*\* epidermis and a skin front face is offered. \*\* Supply the electrolyte which makes the imbalance of the acid and base of skin cell inside and outside ease. \*\* Monosaccharide is offered as an energy source of a cell, secretion of \*\* neurotransmitter is promoted, and generation and growth of a healthy skin cell are aimed at, adjusting and controlling the blood flow of dermis, and let it be a technical problem to offer the cosmetics which heighten autotherapy capacity.

[0009]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, this invention person wholeheartedly as a result of research 3 - 12% (weight % is expressed below) of fruit sugars, 4 - 16% of glucose, 2 - 8% (xilitol) of xylitol, 0.1 - 0.9% of sodium chlorides, 0.01 - 0.045% of potassium chloride, 0.01 - 0.03% of calcium chlorides, the skin with the ideal external preparations which dissolved each component which consists of 0.15 - 0.45% of sodium lactate in the aqueous-phase component at the temperature of 30-49 degrees C, and the scalp -- a header and this invention are reached [ becoming - hair cosmetics and ].

[0010] In this invention, the loadings of a sodium chloride consider 0.9% to be the cell and isotonicity in the body, and an acid and base balance are prepared by making this value into an upper limit so that it may become neither the osmotic pressure beyond the need, nor a stimulus, and since [ according to / sodium ion ], especially secondary active transport intracellular [ as an energy source of fruit sugar or glucose ] makes a minimum 0.1%. Concentration of potassium chloride, a calcium chloride, and sodium lactate is made into 0.01 - 0.045%, 0.01 - 0.03%, and 0.15 - 0.45% for the same reason as said sodium chloride, respectively.

[0011] Potassium ion had the highest concentration as an intracellular cation, maintained sodium ion with the highest concentration, and electric balance relation as a cation in extracellular fluid, and has played the role important also for the active transport of the matter. By making lifting diacylglycerol (DG) produce decomposition of the inositol phospholipid of a cell membrane in extracellular fluid, especially calcium ion activated protein KAINAZE C (PKC), formed cell indirect arrival equipment, and has played the role important for growth and differentiation of a keratin cell. Sodium lactate is metabolized in the living body, turns into a sodium hydrogencarbonate of equimolar, demonstrates a relaxation operation (buffer action), and maintains an acid-base equilibrium normally.

[0012] Although the above mineral and electrolyte are the thing of a proper for the inside and outside of a skin cell, and the body therefore, it does not become a foreign matter (ARERUKEN) within a skin front face and epidermis, but an acid-base equilibrium is prepared, matter transportation in a cell membrane is made smooth, and supply of the oxygen as an energy source, a saccharide and protein, or a lipid is made smooth.

[0013] On the other hand, saccharides, such as fruit sugar, glucose, and xylitol (xilitol), are effectively used with oxygen, protein, and a lipid as a source of E sheep RUGI of a cell, just by performing smoothly the terms and conditions in the skin front face by the above-mentioned electrolyte, and epidermis, i.e., an acid-base equilibrium, electrolyte supply of cell inside and outside, matter transportation that lets a cell membrane pass.

[0014] They are six monosaccharides with the highest activity in a saccharide, and fruit sugar are easy to be used by prompt shift intracellular from an extracellular fluid layer as an energy source of a skin cell, with twice [ about ] as many osmotic pressure as this, make cell passage of glucose easy, are serving also as an instrument of rational energy supply, and its microorganism growth inhibition least concentration is also low compared with glucose or cane sugar, and they prevent efficiently growth of the saprophytic bacteria in a skin front face and epidermis, or mold. And the loadings are made into 3 - 12%.

[0015] While glucose is also an energy source important for a cell, it had control of protein catabolism, and an anti-ketone operation, the role important for the cell metabolic turnover of the skin is played, it has moisture, and calorie supply and a detoxifying effect, and the loadings are made into 4 - 16%.

[0016] It is participating in the biosynthesis of a nucleic acid etc. as an energy source of a cell like

glucose or fruit sugar at coincidence, and an anti-ketone operation improves lipid metabolism strongly, and is fully used also in the cell into which it aged in epidermis, and xylitol (xilitol) makes the loadings 2 - 8%.

[0017] In consideration of the ratio to it, it decided for criteria that the concentration of the sodium chloride in the electrolyte in the body with the most important loadings range of electrolytes including the above-mentioned sodium chloride was 0.9%, the loadings of each monosaccharide were carried out based on repeated clinical data, and it determined in the range of the loadings which were the best as for the result.

[0018] By the cosmetics of this invention consisting of above components, and applying to the direct skin In addition to the healthy skin with which the skin outermost layer was covered by the fat film (skin surface lipid) It is absorbed from the skin lesion section, a sudoriferous gland, and the hair follicle (sebaceous gland is included), and a direct energy source is supplied. the vein which passed through the capillary from free nerve \*\*\*\*, the Meissner corpuscle, the mast cell, and the artery in epidermis and dermis intracellular, and the hair follicle -- from - nerve bundle Secretion of neurotransmitter (NP;neuropeptide) is urged, By passing through an autonomic nerve, and adjusting and controlling a skin blood flow secondarily, generate a cell adhesion molecule like \*\* cadherin, and the supporting structure between cells is strengthened. \*\* Epidermis chemotaxis by the PA/plasmin system is smoothly performed in the wound section in epidermis. PKC (protein KAINAZE C) is activated under the concentration of effective calcium ion, and growth and differentiation of an epidermis keratin cell are promoted. the wound section -- early recovery -- leading -- \*\* -- Formation of desmosome is urged with cell indirect arrival equipment, and the differentiation and growth of the skin microvessel endothelial cell directly under epidermis and a skin cell by \*\* cell growth factor are promoted, Every time it, of course, spreads present condition maintenance of the healthy skin, it makes smooth matter transportation intracellular from through extracellular fluid for a cell membrane. A skin front face and the failure cell in epidermis, or early restoration of an organization is aimed at by improving the metabolic turnover of oxygen, a saccharide and protein, or a lipid, and raising production of ATP (adenosine tri-phosphate) which is the energy unit of a cell as the result.

[0019] Moreover, truant is played, and in \*\*, make nutrition supply from dermis smooth, it makes a healthy skin cell generate, and is led to a therapy, and hair fostering is promoted the desiccation skin, pigmentation, and by making nutrition supply into a hair mother cell increase by the circulation improvement to a hair root to the hair.

[0020]

[Example]

Fruit sugar 5 % Glucose 16 % Xylitol (xilitol) 2 % A sodium chloride 0.1 % potassium chloride 0.01% calcium chloride 0.01% sodium lactate It mixed and dissolved in 76.3% of water at the temperature of 30-49 degrees C, 0.15% or more of component was used as the water solution, and the external preparations of this invention were obtained.

[0021] The efficacy of the external preparations of this invention showed the case (case) where the external preparations of this invention which consists of an above-mentioned presentation were used by the following efficacy trial in Table 1, made it the example of a comparison, and showed the case (control) where the external preparations which consist of 70% of water were used in Table 2 20% [ of \*\*\*\*\* ], 5% [ of sodium chlorides ], and dextran 15%.

[0022] The efficacy trial of the external preparations of this invention was carried out for six months to 50 each of the desiccation skin, a hand dry area, the adult woman that worries about atopic dermatitis, and the adult men who play truant and worry about \*\* and atopic dermatitis (atopic dermatitis was taken as every 25 man and woman each), and out of said 50 patients each, the efficacy trial by control elected 25 persons each at random, and was carried out.

[0023] the effectiveness according [ an efficacy result ] to this invention -- it is -- >2 point -- a little -- it is -- > -- one point is nothing -- the mark were computed as >0 point and effectiveness was expressed as  $x(\text{totaling point} / 50)100\%$ . In addition, the numeric value in ( ) of front Naka shows effectiveness.

[0024]

[Table 1]

症例／月	1ヶ月	2ヶ月	3ヶ月	4ヶ月	5ヶ月	6ヶ月
乾燥肌	3 9 ( 78% )	4 1 ( 82% )	4 4 ( 88% )	4 5 ( 90% )	4 6 ( 92% )	4 8 ( 96% )
手荒れ	2 0 ( 40% )	3 1 ( 62% )	3 6 ( 72% )	4 0 ( 80% )	4 1 ( 82% )	4 3 ( 86% )
フケ症	3 0 ( 60% )	3 4 ( 68% )	4 0 ( 80% )	4 1 ( 82% )	4 4 ( 88% )	4 5 ( 90% )
アトピー 性皮膚炎	1 5 ( 30% )	1 8 ( 36% )	2 0 ( 40% )	2 3 ( 46% )	3 0 ( 60% )	3 6 ( 72% )

[0025]

[Table 2]

症例／月	1ヶ月	2ヶ月	3ヶ月	4ヶ月	5ヶ月	6ヶ月
乾燥肌	2 ( 4% )	4 ( 8% )	4 ( 8% )	4 ( 8% )	5 ( 10% )	6 ( 12% )
手荒れ	1 ( 2% )	2 ( 4% )	4 ( 8% )	4 ( 8% )	5 ( 10% )	5 ( 10% )
フケ症	2 ( 4% )	4 ( 8% )	6 ( 12% )	6 ( 12% )	7 ( 14% )	8 ( 16% )
アトピー 性皮膚炎	0 ( 0% )	0 ( 0% )	1 ( 2% )	1 ( 2% )	2 ( 4% )	3 ( 6% )

[0026]

[Effect of the Invention] According to this invention, these failure cell with deep giving energy to the failure cell of the skin which offers the ideal media (environment) used as a foreign matter (allergen), and contains epidermis into a skin front face and epidermis was succeeded in normal and activated.

[0027] The external preparations of this invention making the imbalance of the acid-base of skin cell inside and outside ease, offering monosaccharide as an energy source of a cell, and promoting secretion of neurotransmitter It is the ideal external preparations which can aim at generation and growth of a healthy skin cell while adjusting and controlling the blood flow of dermis. The conventional \*\*\*\*\* does not recover and the desiccation skin, atopic dermatitis, and a contribution very important for people who demonstrate great effectiveness by playing truant for the therapy of \*\*, pigmentation (silverfish), a feeling of itching (pruritus), the rubor (\*\*\*\*), etc., and

have continued worrying about the side effect are made.

---

[Translation done.]



XP-002083724 -

1/1 - (C) WPI / DERWENT  
AN - 93-309091 ç23!  
AP - JP920060893 920131; JP920060893 920131; çBased on  
J05221823 !  
PR - JP920060893 920131  
TI - Aq. skin and hair cosmetics, for treating dry skin,  
atopic skin inflammation and dandruff - contains  
fructose, glucose, xylitol, sodium-, potassium- and  
calcium chloride and sodium lactate in water  
IW - AQUEOUS SKIN HAIR COSMETIC TREAT DRY SKIN ATOPIC SKIN  
INFLAMMATION DANDRUFF CONTAIN FRUCTOSE GLUCOSE XYLITOL  
SODIUM POTASSIUM CALCIUM CHLORIDE SODIUM LACTATE WATER  
PA - (TEIT-I) TEI T  
PN - JP5221823 A 930831 DW9339 A61K7/00 005pp  
- JP7042211B B2 950510 DW9523 A61K7/00 005pp  
ORD - 1993-08-31  
IC - A61K7/06 ; A61K7/48  
FS - CPI  
DC - D21 E19  
AB - J05221823 A new aq. skin/hair cosmetic material  
contains 3-12 wt.% of fructose, 4-16 wt.% of glucose,  
2-8 wt.% of xylitol, 0.1-0.9 wt.% of sodium chloride,  
0.01-0.045 wt.% of K chloride, 0.01-0.03 wt.% of Ca  
chloride and 0.15-0.45 wt.% of sodium lactate,  
dissolved in water phase at 30-49 deg.C.  
- USE - The material reduces the acid-base imbalance in  
and outside cells, gives monosaccharides as an energy  
source, promotes secretion of nerve transmitters and  
grows healthy skin(Dwg.0/0)

(19)日本国特許庁(JP)

(12) 公開特許公報(A)

(11)特許出願公開番号

特開平5-221823

(43)公開日 平成5年(1993)8月31日

(51)Int.Cl. <sup>5</sup>	識別記号	庁内整理番号	F I	技術表示箇所
A 6 1 K 7/00	M	9165-4C		
	F	9165-4C		
	B	9165-4C		
	C	9165-4C		
	W	9165-4C		
審査請求 有 請求項の数 1(全 5 頁) 最終頁に続く				

(21)出願番号 特願平4-60893

(22)出願日 平成4年(1992)1月31日

(71)出願人 592058887

鄭 忠

兵庫県西宮市名次町 5-7

(72)発明者 鄭 忠

兵庫県西宮市名次町 5-7

(74)代理人 弁理士 秋山 鳳見 (外2名)

(54)【発明の名称】 水性皮膚及び頭皮・頭髮化粧料

(57)【要約】

【目的】 果糖3～12% (以下重量%を表わす)、葡萄糖4～16%、キシリット2～8%、塩化ナトリウム0.1～0.9%、塩化カリウム0.01～0.045%、塩化カルシウム0.01～0.03%、乳酸ナトリウム0.15～0.45%からなる各成分を、30～49℃の温度で水相成分に溶解した水性皮膚及び頭皮・頭髮化粧料。

【構成】 皮膚細胞内外の酸-塩基のアンバランスを緩和させ、細胞のエネルギー源として単糖類を提供し、神経伝達物質の分泌を促進しつつ、真皮の血流を調節・制御しながら健常皮膚の生成・増殖を図り、乾燥肌、アトピー性皮膚炎、フケ症等の治療に有効である。

## 【特許請求の範囲】

【請求項】 果糖3～12%、(以下重量%を表わす) 葡萄糖4～16%、キシリット(xilitol)2～8%、塩化ナトリウム0.1～0.9%、塩化カリウム0.01～0.045%、塩化カルシウム0.01～0.03%、乳酸ナトリウム0.15～0.45%からなる各成分を、30～49℃の温度で水相成分に溶解した水性皮膚及び頭皮・頭髮化粧料。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明は水性皮膚及び頭皮・頭髮化粧料に係わり、皮膚細胞に対して異物(アレルゲン)に成らない理想的なメディア(環境)を提供しつつ、皮膚病変部において、経皮吸収により病的又は老化皮膚細胞に直接エネルギーを供給すると共に、表皮又は真皮細胞内にある神経伝達物質(NP;neuropeptide)の分泌を促し、間接的に皮膚血流を調節・制御する事によって病的又は老化皮膚細胞の正常・活性化を図り、健康皮膚細胞の生成・増殖を促進する様にした水性皮膚及び頭皮・頭髮化粧料に関するものである。

## 【0002】

【従来の技術】塩化ナトリウムは0.9%溶液が生理食塩水として人体における細胞外液と濃度が等しく、人体の内部環境(internal environment)とも言われる細胞外液の生体恒常性(homeostasis)維持に重要で大きな役割を果たしており、これまでは殺菌や肌を和らげる目的で化粧品の中に配合されている。

【0003】無機塩やミネラル、糖類等を含む水溶液は主に静脈注射によって体内に補給されるものであるが、これらは外用剤の成分として数多くの化粧品や医薬品にも配合されており、外用剤としての効果は皮膚の保護、保湿、湿潤、殺菌作用等である。

【0004】化粧品は薬事法により「身体を清潔にし、魅力を増し、容貌を変えまたは皮膚もしくは毛髪をすこやかに保つために身体に塗布、散布その他これに類似する方法で使用することが目的とされるもので、人体に対する作用が緩和なものをいう」(薬事法第二条第三項)と定義されている。ところが無機塩や糖類を個々単体とした外用剤としての効果は期待しにくく、同じ化粧品の成分として配合される防腐剤、界面活性剤、殺菌剤等によってむしろ健康皮膚細胞が破壊され掻痒感、発赤、浮腫等の炎症症状を出現させたりしている。

【0005】また化粧水とする溶液に皮膚を滑らかにするためデキストラン等の多糖類を配合したりしているが、それら多糖類は単糖類の重合体であり分子量が一万以上にもなるという性質上、皮膚に対して異物(アレルゲン)となりやすく、溶液が乾き切った後の突っ張り感も刺激になる等、化粧品としての本質を失っているものが多い。

【0006】これらは一連の炎症症状やアレルギー症状を起こすだけで無く、反復的な使用によって皮膚表面又は表皮内に障害をもたらし、酸・塩基のアンバランスや電解質異常を来し、その結果として細胞膜における物質輸送が円滑に行われず、細胞内での酸素や糖類、脂質や蛋白質などの代謝を低下させ、その結果として細胞におけるエネルギーの単位であるATP(アデノシン三リン酸)の生産を低下させる等悪循環の原因となっている。

【0007】そしてそれらは色素沈着(シミ)、掻痒感(カユミ)、発赤(赤ら顔)、脱毛という症状や症候として一次的に現れ、以前は何ともなかった紫外線や化粧品、薬品の使用によって諸症状が二次的に反復出現することもまれではない。

## 【0008】

【発明が解決しようとする課題】本発明は上記のような問題点に着目してなされたものであり、①表皮及び皮膚表面において異物(アレルゲン)とならない理想的環境を提供し、②皮膚細胞内外の酸・塩基のアンバランスを緩和させる電解質を供給し、③細胞のエネルギー源として単糖類を提供し、④神経伝達物質の分泌を促進させ、真皮の血流を調節・制御しながら健康皮膚細胞の生成・増殖を図り、自然治癒能力を高める化粧料を提供することを課題とするものである。

## 【0009】

【課題を解決するための手段】上記課題を解決するために、本発明者は鋭意研究の結果、果糖3～12%(以下重量%を表わす)、葡萄糖4～16%、キシリット(xilitol)2～8%、塩化ナトリウム0.1～0.9%、塩化カリウム0.01～0.045%、塩化カルシウム0.01～0.03%、乳酸ナトリウム0.15～0.45%からなる各成分を、30～49℃の温度で水相成分に溶解した外用剤が、理想的な皮膚および頭皮・頭髮化粧料となることを見出し、本発明に到達したものである。

【0010】本発明においては塩化ナトリウムの配合量は、0.9%を人体内の細胞と等張と考え、必要以上の浸透圧や刺激にならないようにこの値を上限として酸・塩基バランスを整え、特に果糖や葡萄糖のエネルギー源としての細胞内への二次的な能動輸送は、ナトリウムイオンによるものであることから下限を0.1%とする。塩化カリウム、塩化カルシウム、乳酸ナトリウムの濃度は、前記塩化ナトリウムと同様な理由によりそれぞれ0.01～0.045%、0.01～0.03%、0.15～0.45%とする。

【0011】カリウムイオンは細胞内の陽イオンとして一番濃度が高く、細胞外液中の陽イオンとして一番濃度が高いナトリウムイオンと電氣的平衡関係を保ち、物質の能動輸送にも重要な役割を果たしている。カルシウムイオンは、特に細胞外液中にて細胞膜のイノシトールリン脂質の分解を起こしジアシルグリセロール(DG)を

産出させることにより、プロテインカイナーゼC (PKC) を活性化させ細胞間接着装置を形成し、角質細胞の増殖・分化に重要な役割をはたしている。乳酸ナトリウムは、生体内で代謝され等モルの炭酸水素ナトリウムとなって緩和作用 (buffer action) を発揮し酸・塩基平衡を正常に維持する。

【0012】以上の無機塩類及び電解質が皮膚細胞内外、人体にとって固有のものであるがゆえに皮膚表面及び表皮内で異物 (アレルケン) とならず、酸・塩基平衡を整え、細胞膜における物質輸送を円滑にし、エネルギー源としての酸素や糖類、蛋白質や脂質の供給をスムーズにする。

【0013】一方果糖、葡萄糖、キシリット (xilitol) 等の糖類は上記電解質による皮膚表面及び表皮内の諸条件、つまり酸・塩基平衡、細胞内外の電解質供給、細胞膜を通しての物質輸送等が円滑におこなわれてこそ、細胞のエネルギー源として酸素や蛋白質、脂質と共に有効に利用される。

【0014】果糖は糖類の中で最も活性度の高い六単糖で、細胞外液層から細胞内への速やかな移行により皮膚細胞のエネルギー源として利用されやすく、約2倍の浸透圧で葡萄糖の細胞通過を容易にし、合理的なエネルギー供給の道具としても役立っており、微生物生育阻止最低濃度も葡萄糖やショ糖に比べると低く、皮膚表面及び表皮内における雑菌又は糸状菌の発育を効率的に阻止する。そしてその配合量は3~12%とする。

【0015】葡萄糖も細胞にとって重要なエネルギー源であると共に、蛋白異化の抑制、抗ケトン作用を有し皮膚の細胞代謝に重要な役割を果たしており、水分やカロリー補給、解毒作用をもち、その配合量は4~16%とする。

【0016】キシリット (xilitol) は、葡萄糖や果糖と同様に細胞のエネルギー源として同時に核酸の生合成等にも関与しており、抗ケトン作用が強く脂質代謝を改善し、表皮内の老化した細胞でも十分に利用され、その配合量は2~8%とする。

【0017】上記塩化ナトリウムをはじめとする電解質の配合量範囲は、人体内における電解質の中で一番重要な塩化ナトリウムの濃度が、0.9%であることを基準にとり、それに対する比率を考慮して決めたものであり、各単糖類の配合量は度重なる臨床データを元にして一番結果のよかった配合量の範囲で決定した。

【0018】本発明の化粧料は以上のような成分で構成されており、直接皮膚に塗布することによって、皮膚最外層が脂肪膜 (skin surface lipid) でおおわれた健康皮膚以外に、皮膚病変部や汗腺、毛包 (脂腺を含む) から吸収され、直接エネルギー源を供給し、表皮及び真皮細胞内にある自由神経終末・マイスネル小体・肥満細胞・動脈から毛細血管を経た静脈・毛包・神経束から、神経伝達物質 (NP; neurop

ptide) の分泌を促すなど、自律神経を経て二次的に皮膚血流を調節・制御することにより①カドヘリンのような細胞接着分子を生成して細胞間の支持構造を強固にし、②表皮内創傷部にPA/plasmin系による表皮細胞遊走がスムーズに行われ、創傷部を早期治癒に導き、③有効なカルシウムイオンの濃度下にてPKC (プロテインカイナーゼC) を活性化させ表皮角質細胞の増殖・分化を促進させ、細胞間接着装置によりデスモゾームの形成を促し、④細胞成長因子による表皮直下の皮膚微小血管内皮細胞と皮膚細胞の分化・増殖を促進させるなど、健康皮膚の現状維持は勿論しいては細胞膜を通し細胞外液から細胞内への物質輸送を円滑にし、酸素や糖類、蛋白質や脂質の代謝を改善し、その結果として細胞のエネルギー単位であるATP (アデノシン3リン酸) の生産を高めることによって、皮膚表面及び表皮内における障害細胞又は組織の早期修復を図るものである。

【0019】又乾燥肌、色素沈着、フケ症の場合は真皮からの栄養供給を円滑にし、健康な皮膚細胞を生成させ治療に導き、頭髮に対しては毛根への血行改善により毛母細胞への栄養供給を増加させることによって育毛を促進させるものである。

#### 【0020】

##### 【実施例】

果糖	5	%
葡萄糖	16	%
キシリット (xilitol)	2	%
塩化ナトリウム	0.1	%
塩化カリウム	0.01	%
塩化カルシウム	0.01	%
乳酸ナトリウム	0.15	%

以上の成分を30~49℃の温度で水76.3%に混合して溶解し、水溶液にして、本発明の外用剤を得た。

【0021】本発明の外用剤の効能は、下記の効能試験により、上述の組成からなる本発明の外用剤を使用した場合 (ケース) を表1に示し、比較例としこ葡萄糖20%、塩化ナトリウム5%、デキストラン15%、水70%からなる外用剤を使用した場合 (コントロール) を表2に示した。

【0022】本発明の外用剤の効能試験は乾燥肌、手荒れ、アトピー性皮膚炎に悩む成人女子、フケ症とアトピー性皮膚炎に悩む成人男子の各50名 (アトピー性皮膚炎は男女各25名ずつとした) に6ヶ月間実施し、コントロールによる効能試験は前記患者各50名中から各25名をランダムに選出し実施した。

【0023】効能結果は、本発明による効果をあり→2点、ややあり→1点、なし→0点としてその点数を算出し、有効性を (合計点/50) × 100% で表示した。なお、表中の ( ) 内の数値は有効性を示す。

#### 【0024】

【表1】

症例／月	1ヶ月	2ヶ月	3ヶ月	4ヶ月	5ヶ月	6ヶ月
乾燥肌	39 ( 78% )	41 ( 82% )	44 ( 88% )	45 ( 90% )	46 ( 92% )	48 ( 96% )
手荒れ	20 ( 40% )	31 ( 62% )	36 ( 72% )	40 ( 80% )	41 ( 82% )	43 ( 86% )
フケ症	30 ( 60% )	34 ( 68% )	40 ( 80% )	41 ( 82% )	44 ( 88% )	45 ( 90% )
アトピー 性皮膚炎	15 ( 30% )	18 ( 36% )	20 ( 40% )	23 ( 46% )	30 ( 60% )	36 ( 72% )

【0025】

\*20\* 【表2】

症例／月	1ヶ月	2ヶ月	3ヶ月	4ヶ月	5ヶ月	6ヶ月
乾燥肌	2 ( 4% )	4 ( 8% )	4 ( 8% )	4 ( 8% )	5 ( 10% )	6 ( 12% )
手荒れ	1 ( 2% )	2 ( 4% )	4 ( 8% )	4 ( 8% )	5 ( 10% )	5 ( 10% )
フケ症	2 ( 4% )	4 ( 8% )	6 ( 12% )	6 ( 12% )	7 ( 14% )	8 ( 16% )
アトピー 性皮膚炎	0 ( 0% )	0 ( 0% )	1 ( 2% )	1 ( 2% )	2 ( 4% )	3 ( 6% )

【0026】

【発明の効果】本発明によると、皮膚表面及び表皮内に  
おいて異物（アレルゲン）とならない理想的なメディア  
（環境）を提供し、表皮を含む皮膚の障害細胞に対して  
エネルギーを与えることがこき、それら障害細胞を正常  
・活性化することに成功した。

【0027】本発明の外用剤は、皮膚細胞内外の酸－塩  
基のアンバランスを緩和させ、細胞のエネルギー源とし

て単糖類を提供し、神経伝達物質の分泌を促進しつつ、  
真皮の血流を調節・制御しながら健全皮膚細胞の生成・  
増殖を図り得る理想的な外用剤であり、乾燥肌、アトピー  
性皮膚炎、フケ症、色素沈着（シミ）、掻痒感（カユ  
ミ）、発赤（赤顔）等の治療に多大な効果を発揮し、従  
来の外用剤には治ゆしなかったり、又その副作用で悩み  
続けて来た人々に極めて重要な貢献をなすものである。

フロントページの続き

(51)Int.Cl. <sup>5</sup>	識別記号	庁内整理番号	F I	技術表示箇所
A 6 1 K	7/06	8615-4 C		
	7/48	9051-4 C		